

This Page Is Inserted by IFW Operations  
and is not a part of the Official Record

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning documents *will not* correct images,  
please do not report the images to the  
Image Problem Mailbox.**

**THIS PAGE BLANK (USPTO)**



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11) Publication number: **0 562 300 A1**

(12)

## EUROPEAN PATENT APPLICATION

(21) Application number: **93103083.7**

(51) Int. Cl.<sup>5</sup>: **A47B 96/18, B29C 63/04**

(22) Date of filing: **26.02.93**

(30) Priority: **19.03.92 IT US920038**

(43) Date of publication of application:  
**29.09.93 Bulletin 93/39**

(84) Designated Contracting States:  
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC  
NL PT SE**

(71) Applicant: **SPRING DUE Srl**  
**Via Rovere 22**  
**I-33070 S. Cassiano di Brugnera (PN)(IT)**

(72) Inventor: **De Marchi, Lino**  
**Via Rosina 11**  
**I-33080 Ghirano di Prata (PN)(IT)**

(74) Representative: **Petraz, Gilberto Luigi**  
**GLP S.r.l. Piazzale Cavedalis 6/2**  
**I-33100 Udine (IT)**

(54) **Panel for work-tables of furniture with a watertight joint of the covering materials.**

(57) Panel for work-tables of furniture with a water-tight joint of the covering materials, the panel (10) comprising an inner body (11) covered at least with one sheet of plastic material, the edges of which mate together substantially to create a line (13) of the joint, a hollow (15) being contained in the inner body (11) in cooperation with the line (13) of the joint and containing water-repellent/sealing material (16).

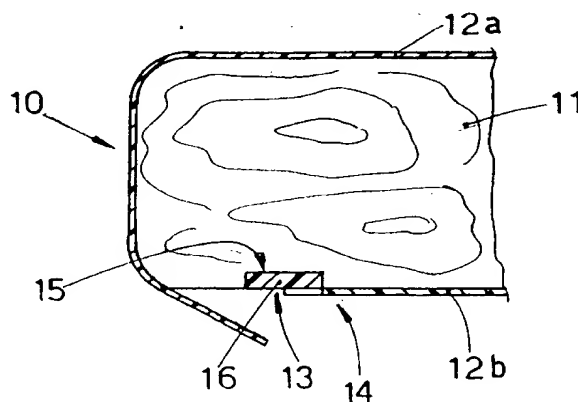


fig.1

EP 0 562 300 A1

This invention concerns a panel for work-tables of furniture with a watertight joint of the covering materials, as set forth in the main claim.

To be more exact, the invention is applied to the waterproof covering materials employed for the surface finishing of panels for furniture, such as the panels used in making the work-tables of furniture and, in particular, of furniture for kitchens or work-tables for bars, butchers' benches, etc.

Such work-tables are normally covered with a sheet of plastic material so as to make their surface waterproof and to be able to use as an inner body a low cost material such as chipboard panels. The covering consists of two different materials.

The upper surface and edges are covered with a stiffer and more costly plastic material, whereas the lower surface is covered (for reasons of finish and contrast) with various materials such as plastic-coated paper or plastic material of a lower quality.

The work carried out on the work-tables entails the handling of various liquids, which can run along the covering material and can stop on the lower surface of the work-table.

The present invention has the purpose of achieving a watertight joint between the sheet of the laminated plastic covering the upper surface and the sheet covering the lower surface of the work-table.

This watertight joint is particularly required at the front edge with which the user cooperates, for the liquids are to be found most often in that zone.

The invention is applied to the woodworking industry and in particular to the fabrication of furniture and advantageously, but not only, of kitchen furniture.

The work-tables of furniture consist generally of normally flat inner bodies made of a low cost material, such as, for instance, chipboard panels or the like, which are covered by the hot-moulding of sheets of a laminated plastic applied respectively to the upper and lower surfaces of the substantially flat inner body.

The sheets of laminated plastic are normally two in number and possess different characteristics. The sheet of laminated plastic positioned on the upper surface is usually and advantageously folded to cover at least the front edge too of the flat inner body.

The upper sheet of laminated plastic normally extends at least to the lower edge of the work-table so as to avoid visible joints, which would be unsightly.

The line of the joint between the upper sheet of laminated plastic and the lower sheet may therefore, depending on the shape of the edge of the panel, coincide with a corner of the edge of the panel or may lie advantageously on the hidden surface, normally the lower surface, of the panel. In

the first of these cases the joint between the plastic sheets is formed substantially as a butt joint, while in the second case the upper sheet of laminated plastic is butt-jointed to the lower sheet of laminated plastic at a position near the edge of the panel but on its lower surface.

The line of the joint between the upper sheet of laminated plastic and the lower sheet of laminated plastic thus lies on the lower surface of the work-table at a position substantially retracted from the edge.

In these known types of joint, where the edges of the two sheets of laminated plastic merely face each other along the line of the joint, it is not possible to ensure a watertight condition of the covering and this fact enables liquids to infiltrate into the flat inner body, thus creating serious problems in the long term.

In fact, water or another liquid penetrates into the chipboard panel through the opening which forms along the line of the joint between the two sheets of laminated plastic, thus causing deterioration of the work-table in the long term.

The present applicants have designed, tested and embodied this invention to overcome the shortcomings of the state of the art and to achieve further advantages.

This invention is set forth and characterized in the main claims, while the dependent claims describe variants of the idea of the main embodiment.

The joint according to the invention between the covering sheets of laminated plastic makes possible a simple, lasting and economical seal of the gap created along the line of the joint between the two sheets.

A watertight condition is ensured in this way for the inside of the panel, which is covered without a continuous system, and any infiltration of a liquid and of water in particular into the panel is prevented.

In the case of kitchen, restaurant, bar, etc. furniture, the work-tables are work-tables on which are lodged the cooking plate, washing sink, etc. and on which the working equipment is supported.

According to a first lay-out, where the line of the joint between the two sheets of laminated plastic is located on one of the two surfaces, advantageously the lower surface, of the panel, the jointing methods according to the invention provides for a lengthwise hollow made in the chipboard panel and coinciding with the line of the joint of the two sheets of laminated plastic. This hollow extends advantageously along the whole length of the line of the joint.

A strip of water-repellent plastic material, a strip of PVC for instance, is applied in this hollow and has a shape and size which mates with the form of the hollow.

According to a variant, plastic material which replaces the plastic strip is injected into the hollow and is then moulded to the correct shape. The edges of the two jointed sheets of laminated plastic are then secured with an adhesive to the strip of water-repellent plastic material, thus providing a perfectly sealed joint.

On the basis of a second lay-out, where the line of the joint between the two sheets of laminated plastic coincides with a corner of the panel, a seating is made at that corner. A water-repellent plastic element is fitted into the seating and reproduces outwardly the desired corner.

According to a variant, plastic material is injected into the seating and then moulded and performs the same function as the water-repellent plastic element which it replaces.

The edges of the two sheets of finishing laminated plastic which cooperate with each other are made to adhere respectively to the two outer sides of the plastic element.

According to a further lay-out the work-table is covered with a first sheet of a finishing laminated plastic of a good quality over its visible surface and with a second sheet of a deformable plastic material of a lower quality, such as PVC film for instance, on its hidden surface.

For reasons of good appearance the line of the joint between the two sheets is made advantageously on the hidden surface of the work-table.

A ledge of a thickness substantially equal to the thickness of the sheet of a finishing laminated plastic is provided on the surface of the panel and coincides with the line of the joint.

This ledge can be made either by machine or during the step of applying the second sheet of plastic material of a lower quality.

On the basis of this lay-out the second sheet of plastic material is fitted by being made to adhere to the ledge and thus by itself creating a ledge which extends beyond the ledge by a desired width.

Thereafter the first sheet of laminated plastic, which is applied by hot-moulding, covers the strip by a desired width so as to cooperate with the ledge and thus ensures an engagement seal of the zone of the joint between the second sheet of plastic material and the first sheet of laminated plastic.

The attached figures, which are given as a non-restrictive example, show some preferred embodiments of the invention as follows:-

Fig.1 shows a cross-section of a first panel covered according to a first embodiment of the invention;

Fig.2 shows a cross-section of a second panel covered on the basis of a second embodiment of the invention;

Fig.3 shows a cross-section of a third panel covered on the basis of a third embodiment of the invention;

Fig.4 shows a cross-section of a fourth panel covered on the basis of a fourth embodiment of the invention.

In the figures the reference number 10 indicates generally a panel covered according to the invention.

The panel 10 consists substantially of a substantially flat inner body 11 made of a low cost material such as, for instance, a chipboard panel, and covered with sheets 12 of a laminated plastic of which one sheet is normally applied by hot-moulding and consists of a stiff plastic material of a good quality.

In the example of Fig.1 a line 13 of the joint between the two sheets of laminated plastic, which are an upper sheet 12a and a lower sheet 12b respectively, is located on the lower surface 14 of the panel 10. In correspondence with the line 13 of the joint the flat inner body 11 contains a lengthwise hollow 15, which possesses a desired width and advantageously extends substantially symmetrically on one side and the other side of the line 13 of the joint.

Before the laminated plastic sheets 12 are fitted to the flat inner body 11, a strip 16 of a plastic material having a shape and size that mate with the hollow 15 is applied inside the lengthwise hollow 15.

When the strip 16 of plastic material has been applied within the lengthwise hollow 15, the lower laminated plastic sheet 12b is fitted, by adhesives for instance, so as to cover substantially a half of the width of the hollow 15 and of the strip 16 of plastic material.

The hot-moulded laminated plastic sheet 12a is then applied and adheres correctly to the advantageously rounded edge of the flat inner body 11 to the extent that it cooperates with the edge of the lower laminated plastic sheet 12b, which has been already applied by means of adhesives.

According to a variant the upper laminated plastic sheet 12a is applied first and the lower laminated plastic sheet 12b is applied thereafter.

In the example of Fig.2 the line 13 of the joint between the upper sheet 12a and lower sheet 12b coincides with a corner 17 of the flat inner body 11. In this case the lengthwise hollow 115 coincides with the corner 17 and the strip 16 of plastic material is inserted into the lengthwise hollow 115 so as to re-build the corner 17 outwardly.

According to another form of embodiment shown in Fig.3 the flat inner body 11 is covered on its upper side by a first sheet 12 of laminated plastic and on its lower side by a second sheet 18 of plastic material such as PVC film, for instance.

On the basis of this embodiment an inner ledge 19 is provided along the the line 13 of the joint on the lower surface 14 of the flat inner body 11. The height of this inner ledge 19 is substantially the same as the thickness of the first laminated plastic sheet 12 which covers the upper surface of the flat inner body 11.

The second sheet 18 of plastic material or PVC film is applied to the lower surface 14 of the inner body 11 and is made to adhere to the ledge 19 and to extend by a desired length towards the outer corner of the flat inner body 11. The upper laminated plastic sheet 12 is then hot-moulded and caused to adhere to the outer corner of the flat inner body 11 to the extent that its terminal edge 20 cooperates with the ledge 19.

According to another form of embodiment shown in Fig.4 the line 13 of the joint between the upper laminated plastic sheet 12 and the second sheet 18 of a plastic material, PVC film for instance, coincides with a corner 17 of the flat inner body 11. In this case the inner ledge 19 is made at the corner 17 of the panel 10.

The second sheet 18 of plastic material or PVC film is applied to the lower surface 14 of the inner body 11 so as to extend by a desired length beyond the corner 17 of the inner body 11. This second sheet 18 of plastic material extends so far as to cover at least partly the edge of the flat inner body 11 and to form a ledge 19.

Next, the first laminated plastic sheet 12 is hot-moulded onto the flat inner body 11 to the extent that it covers with its terminal edge 20 that part of the second sheet 18 of plastic material that has formed the ledge 19.

The invention enables a panel 10 to be provided in which the covering consists of sheets 12, 12a, 12b and 18 which, even in correspondence with their line 13 of the joint, cover the panel without continuous application and thus prevent even the smallest infiltration of a liquid which might damage the inner body.

## Claims

1. Panel for work-tables of furniture with a water-tight joint of the covering materials, the panel (10) comprising an inner body (11) covered at least with one sheet of plastic material, the edges of which mate together substantially to create a line (13) of the joint, the panel being characterized in that a hollow (15) is contained in the inner body (11) in cooperation with the line (13) of the joint and contains water-repellent/sealing material (16).
2. Panel as in Claim 1, in which the hollow (15) is located in the lower surface of the panel (10)

(Fig. 1).

3. Panel as in Claim 1, in which the hollow (15) is located in an edge/corner (17) of the panel (10) (Fig.2).
4. Panel for work-tables of furniture with a water-tight joint of the covering materials, the panel (10) comprising an inner body (11) covered at least with one sheet of plastic material, the edges of which mate together substantially to create a line (13) of the joint, the panel being characterized in that a ledge (19) covered by a second sheet (18) of plastic material is included in the inner body (11) in cooperation with the line (13) of the joint and defines the line (13) of the joint with which the terminal edge (20) of the first hot-moulded laminated plastic sheet (12) cooperates (Fig.3).
5. Panel as in Claim 4, in which the ledge (19) is located in the lower surface (14) of the panel (10) (Fig.3).
6. Panel as in Claim 4, in which the ledge (19) is located in the corner (17) of the panel (10) (Fig.4).

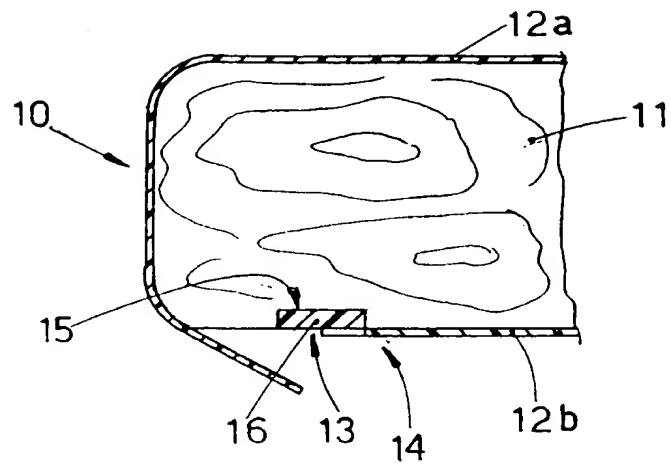


fig.1

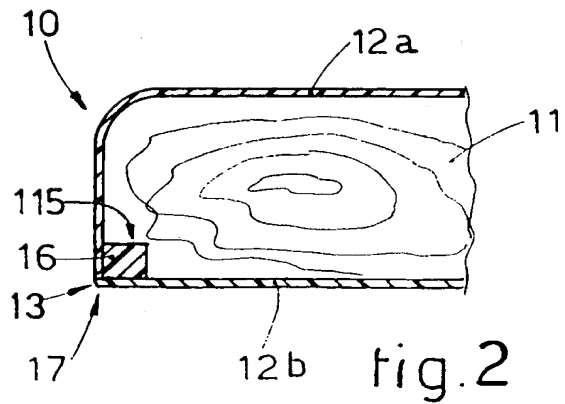


fig.2

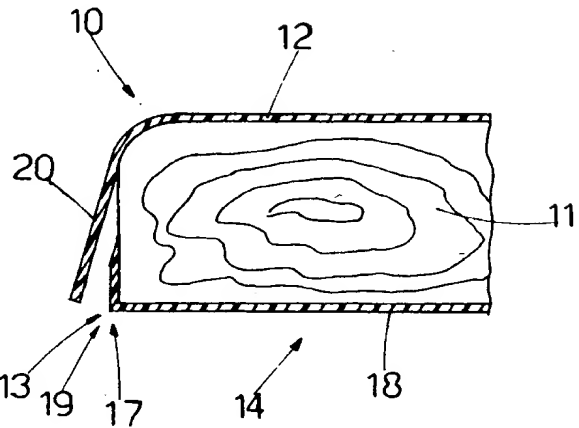


fig.4

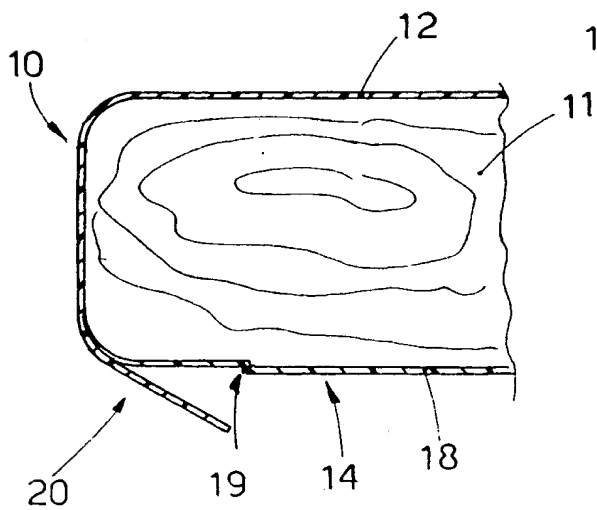


fig.3



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number

EP 93 10 3083

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int. Cl.5)
X	DE-U-8 910 540 (HORNITEX WERKE GEBR. KÜNNEMEYER GMBH & CO KG) ---	1-6	A47B96/18 B29C63/04
X	EP-A-0 183 914 (DUROPAL-WERK EBERH. WREDE GMBH & CO. KG) * figure 2 *	1-6	
X	EP-A-0 234 192 (DUROPAL-WERK EBERH. WREDE GMBH & CO. KG) * figure 5 *	1,2	
X	EP-A-0 124 711 (DUROPAL-WERK EBERH. WREDE GMBH & CO. KG) * figures *	1,2	
A	US-A-4 751 125 (OFTERDINGER) * figures *	1-6	
A	DE-A-3 810 053 (WERRES) * figure 9 * -----	3,6	
			TECHNICAL FIELDS SEARCHED (Int. Cl.5)
			A47B B29C
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 08 JULY 1993	Examiner SCHÖLVINCK T.S.
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document			

EPO FORM 1503 (12.82) (P0401)